

Write a code to generate a ultrasonic sensor in the cloud IBM.

Procedure:

Ultrasonic Sensor HC-SR04 is a sensor that can measure distance. It emits an ultrasound at 40 000 Hz (40kHz) which travels through the air and if there is an object or obstacle on its path It will bounce back to the module. Considering the travel time and the speed of the sound you can calculate the distance.

The configuration pin of HC-SR04 is VCC (1), TRIG (2), ECHO (3), and GND (4).

The supply voltage of VCC is +5V and you can attach TRIG and ECHO pin to any Digital I/O in your Arduino Board.

Program:

```
int trigPin = 9;    // TRIG pin
int echoPin = 8;    // ECHO pin
```

```
float duration_us, distance_cm;
```

```
void setup() {
```

```
    // begin serial port
```

```
    Serial.begin (9600);
```

```
    // configure the trigger pin to output mode
```

```
    pinMode(trigPin, OUTPUT);
```

```
    // configure the echo pin to input mode
```

```
    pinMode(echoPin, INPUT);
```

```
}
```

```
void loop() {
```

```
    // generate 10-microsecond pulse to TRIG  
pin
```

```
    digitalWrite(trigPin, HIGH);
```

```
    delayMicroseconds(10);
```

```
    digitalWrite(trigPin, LOW);
```

```
    // measure duration of pulse from ECHO pin
```

```
    duration_us = pulseIn(echoPin, HIGH);
```

```
    // calculate the distance
```

```
    distance_cm = 0.017 * duration_us;
```

```
// print the value to Serial Monitor
Serial.print("distance: ");
Serial.print(distance_cm);
Serial.println(" cm");

delay(500);
}
```

Output:

distance: 29.4 cm
distance: 27.6 cm
distance: 26.9 cm
distance: 17.4 cm
distance: 16.9 cm
distance: 14.3 cm
distance: 15.6 cm
distance: 13.1 cm

Block circuit diagram:

